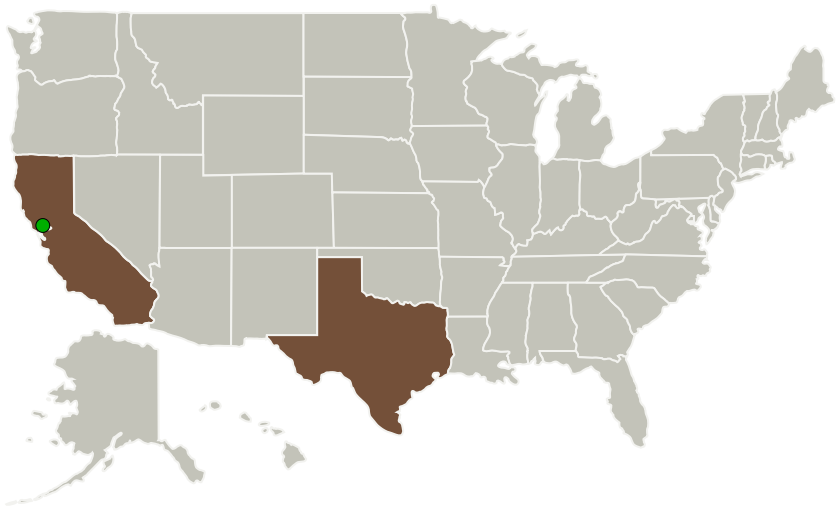
Semantic Summarization for Context Aware Manipulation of Data, Phase II

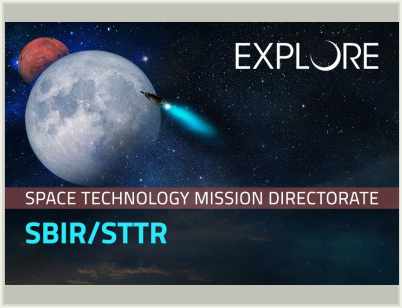
Completed Technology Project (2010 - 2012)

Project Introduction

NASA's exploration and scientific missions will produce terabytes of information. As NASA enters a new phase of space exploration, managing large amounts of scientific and operational data will become even more challenging. Robots conducting planetary exploration will produce data for selection and preparation of exploration sites. Robots and space probes will collect scientific data to improve understanding of the solar system. Satellites in low Earth orbit will collect data for monitoring changes in the Earth's atmosphere and surface environment. Key challenges for all these missions are understanding and summarizing what data have been collected and using this knowledge to improve data access. TRACLabs and CMU propose to develop context aware image manipulation software for managing data collected remotely during NASA missions. This software will filter and search large image archives using the temporal and spatial characteristics of images, and the robotic, instrument, and environmental conditions when images were taken. It also will implement techniques for finding which images show a terrain feature specified by the user. In Phase II we will implement this software and evaluate its effectiveness for NASA missions. At the end of Phase II, context aware image manipulation software at TRL 5-6 will be delivered to NASA.

Primary U.S. Work Locations and Key Partners





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Organizations Performing Work	Role	Type	Location
TRACLabs, Inc.	Lead Organization	Industry	Webster, Texas
Ames Research Center(ARC)	Supporting Organization	NASA Center	Moffett Field, California
Carnegie Mellon University - Silicon Valley	Supporting Organization	Academia	Moffett Field, California

Primary U.S. Work Locations	
California	Texas

Project Transitions

August 2010: Project Start

August 2012: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/139438)*

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

TRACLabs, Inc.

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

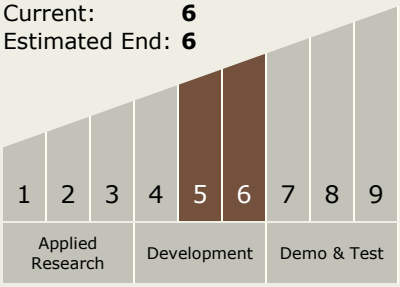
Carlos Torrez

Principal Investigator:

Debra L Schreckenghost

Technology Maturity (TRL)

Start: **5**
Current: **6**
Estimated End: **6**



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Technology Areas

Primary:

- TX11 Software, Modeling, Simulation, and Information Processing
  - TX11.4 Information Processing
    - TX11.4.1 Science, Engineering, and Mission Data Lifecycle

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System